

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Binod et al.
Serial No.: Not Yet Assigned
Filed: October 31, 2003
For: NOVEL COPOLYMERS, PHOTORESIST COMPOSITIONS
THEREOF AND DEEP UV BILAYER SYSTEM THEREOF
Art Unit: Not Yet Assigned
Examiner: Not Yet Assigned
Confirmation No.: Not Yet Assigned
Customer No.: 27623
Attorney Docket No.: 335.7735USU

Mail Stop DD
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

In accordance with applicant's duty of disclosure under 37 C.F.R. §1.56, please find attached hereto form PTO-1449 listing information which may be material to the patentability of this application, filed concurrently herewith. This Information Disclosure Statement is being filed:

- ☒ Within three (3) months of the filing date of the national application;
- ☐ Within three (3) months of the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application;
- ☐ Before the mailing date of a first Office Action on the merits;
- ☐ After the filing date or date of first Office Action, but before the mailing date of a final action under 37 C.F.R. §1.113, provided that this occurs prior to the issuance of a Notice of Allowance and provided that this I.D.S. is accompanied by either a certification as specified in 37 C.F.R. §1.97(e) or the fee set forth in 37 C.F.R. §1.17(p);

- _____ After the filing date or date of first Office Action, but before the mailing date of a Notice of Allowance under 37 C.F.R. §1.311, provided that this occurs prior to the final action and provided that this I.D.S. is accompanied by either a certification as specified in 37 C.F.R. §1.97(e) or the fee set forth in 37 C.F.R. §1.17(p);
- _____ After the mailing date of a final action under 37 C.F.R. §1.113, provided that this occurs prior to the issuance of a Notice of Allowance and provided that this I.D.S. is accompanied by a certification as specified in 37 C.F.R. §1.97(e) and the fee set forth in 37 C.F.R. §1.17(p); and
- _____ After the mailing date of a Notice of Allowance under 37 C.F.R. §1.311, provided that this occurs prior to or subsequent to the payment of the Issue Fee and provided that this I.D.S. is accompanied by a certification as specified in 37 C.F.R. §1.97(e) and the fee set forth in 37 C.F.R. §1.17(p).
- _____ Filing with RCE Under 37 CFR 1.114. .

Cited in the attached PTO-1449 are U.S. Patent Nos. 2002/0013059 A1 and 2002/0182541 A1. Pursuant to the waiving of the requirement of 37 CFR 1.98 (a)(2)(i), copies of these U.S. references are not enclosed.

We are enclosing copies of the following articles:

Feher et al., "Facile Syntheses of New Incompletely Condensed Polyhedral Oligosilsesquioxane [c-(C₅H₉)₇Si₇O₉(OH)₃], [c-C₇H₁₃)₇Si₇O₉(OH)₃], and [c-C₇H₁₃)₆O₇(OH)₄]", *Organometallics*, 1991, Pgs. 2526-2528;

Joseph C. Salamone, "*Silsesquioxane-Based Polymers*", *Polymeric Materials Encyclopedia* Vol. 10, Q-S, 1996, Pgs. 7768-7778;

Lichtenhan et al., "*Linear Hybrid Polymer Building Blocks: Methacrylate-Functionalized Polyhedral Oligomeric Silsesquioxane Monomers and Polymers*", *Macromolecules* 1995, Pgs. 8435-8437.

Lichtenhan et al. "*Nanostructured chemicals: A new era in chemical technology*", *Chemical Innovation*, Jan. 2001, Vol. 31, No. 1 Pgs. 1-5;

Joseph D. Lichtenhan, "*Polyhedral Oligomeric Silsesquioxanes: Building Blocks for Silsesquioxane-Based Polymers and Hybrid Materials*", *Inorg. Chem.* Vol. 17, No. 2, 1994, Pgs. 115-130;

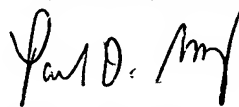
Wu et al., "*Novel Positive-Tone Chemically Amplified Resists with Photoacid Generator in the Polymer Chains*", *Adv. Mater.*, 13, No. 9 May 2001, Pgs. 670-672;

Wu et al., "*Incorporation of polyhedral oligosilsesquioxane in chemically amplified resists to improve their reative ion etching resistance*", *J. Vac. Sci. Techno. B* 19 (3), May/June 2001, Pgs. 851-855;

Gonsalves et al., "*Organic-Inorganic Nanocomposites: Unique Resists for Nanolithography*", *Adv. Mater.* 2001, 13, No> 10, May 17, 2001, Pgs. 703-714;

It should be understood that attention has been called to the references that have been deemed to be pertinent to the claimed present invention. In concluding what was pertinent, the criteria employed was considered most appropriate in light of the invention shown in the present application. However, the Examiner or others may deem some other criteria to be just as appropriate or more appropriate. Therefore, the Examiner is respectfully urged to review the listed references and to make the usual careful independent search for other prior art that may be pertinent.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul D. Greeley".

October 31, 2003

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FORM PTO-1449

INFORMATION DISCLOSURE CITATION
IN AN APPLICATION

(Use several sheets if necessary)

Docket Number (Optional)

335.7735USU

Application Number

Not Yet Assigned

Applicant

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Filing Date

October 31, 2003

Group Art Unit

Not Yet Assigned

U. S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	US 2002/0013059 A1	1/31/02	Kishimura et al.	438	694	
	US 2002/0182541 A1	12/5/02	Gonsalves	430	287.1	

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						YES	NO

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

	Feher et al., "Facile Syntheses of New Incompletely Condensed Polyhedral Oligosilsesquioxane [c-(C ₃ H ₉) ₇ Si ₇ O ₉ (OH) ₃], [c-C ₇ H ₁₃) ₇ Si ₇ O ₉ (OH) ₃], and [c-C ₇ H ₁₃) ₆ O ₇ (OH) ₄]", Organometallics, 1991, Pgs. 2526-2528.
	Joseph C. Salamone, "Silsesquioxane-Based Polymers", Polymeric Materials Encyclopedia Vol. 10, Q-S, 1996, Pgs. 7768-7778.
	Lichtenhan et al., "Linear Hybrid Polymer Building Blocks: Methacrylate-Functionalized Polyhedral Oligomeric Silsesquioxane Monomers and Polymers", Macromolecules 1995, Pgs. 8435-8437.
	Lichtenhan et al. "Nanostructured chemicals: A new era in chemical technology", Chemical Innovation, Jan. 2001, Vol. 31, No. 1 Pgs. 1-5.
	Joseph D. Lichtenhan, "Polyhedral Oligomeric Silsesquioxanes: Building Blocks for Silsesquioxane-Based Polymers and Hybrid Materials", Inorg. Chem. Vol. 17, No. 2, 1994, Pgs. 115-130.
	Wu et al., "Novel Positive-Tone Chemically Amplified Resists with Photoacid Generator in the Polymer Chains", Adv. Mater., 13, No. 9 May 2001, Pgs. 670-672

EXAMINER.

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP §609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.

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	Wu et al., "Incorporation of polyhedral oligosilsesquioxane in chemically amplified resists to improve their reative ion etching resistance", J. Vac. Sci. Techno. B 19 (3), May/June 2001, Pgs. 851-855. Gonsalves et al., "Organic-Inorganic Nanocomposites: Unique Resists for Nanolithography", Adv. Mater. 2001, 13, No> 10, May 17, 2001, Pgs. 703-714.

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